

**Date:** October 7, 2013

**To:** Thomas J. Bonfield, City Manager  
**Through:** W. Bowman Ferguson, Deputy City Manager  
**From:** Donald F. Greeley, Director, Water Management  
**Subject:** Water Regulatory Compliance Engineering Design Services  
Contract, Amendment #3, Black and Veatch, Inc.

### **Executive Summary**

The engineering firm of Black and Veatch, Inc. (B&V) was selected and contracted to provide engineering design services for the Water Treatment Regulatory Compliance Improvement Project. During the course of design, a number of regulatory changes were implemented within State agencies which created a need for design changes. Additional hydraulic modeling of the City's water supply lakes, streams/rivers and Teer Quarry was required for the project's Environmental Assessment (EA). Due to the size of the project, a third party value engineering study was conducted to improve the overall design. In order to complete the work, Black and Veatch is required to provide additional engineering services. This amendment (Amendment #3) provides for additional fees for the Water Regulatory Compliance Project. Funds are available in the current Capital Improvement Program (CIP) fund.

### **Recommendation**

The Department recommends that City Council:

1. Authorize the City Manager to negotiate and execute a third amendment to the contract for the Water Treatment Regulatory Compliance Improvement Project with Black and Veatch Inc. for additional engineering services in an amount not to exceed \$941,921.00;
2. Establish a project contingency in the amount of \$94,192.00; and,
3. Authorize the City Manager or his designee to negotiate and execute additional amendments to the contract provided that the total cost of such amendments does not exceed the available contingency and the total project cost does not exceed \$8,591,562.00.

### **Background**

In 2008, City Council approved the selection of Black and Veatch Inc. (B&V) to provide engineering services for the design, permitting and construction of the Water Regulatory Compliance Project. The project was developed to make essential improvements at the Brown and Williams Water Treatment Plants (WTPs) to enable compliance with the Stage 2 Disinfection Byproducts Rule, as well as other water treatment regulations. In addition to addressing regulatory issues, the project also addresses a number of maintenance issues and includes the expansion of Brown WTP from 30 million gallons per day (MGD) to 42 MGD. Due to the complexity of the project, it is separated into several phases: Evaluation, Master Planning, Design, Permitting, Bidding and Construction Services. The scope of the construction project is estimated to be approximately \$50 million.

Amendment #1 was approved in 2009 and authorized the bidding phase services, construction phase services, and resident field representation. Amendment #2 was also approved in 2009 and amended the original design based on the Evaluation Study and Master Planning. The revised scope includes the Brown WTP expansion,

upgraded chemical feed systems, the addition of SCADA capabilities at both WTPs and associated facilities, upgrading the original backwash system and filters, adding new ADA compliant administrative office and training facilities at the Brown WTP, updating as-built drawings and confirming surveys.

Additionally, this project included an initial construction contract for the rehabilitation of Filters #1- #4 at Brown which has been completed.

### Issues and Analysis

In order to complete the design and permitting of the project, additional design work is needed. The reasons for the additional services are related to six (6) major efforts detailed below in Table 1.

Table 1 Additional Service Description and Cost

Additional Service	Description	Cost
<b>Environmental Assessment</b>	After initial meetings with NC DENR, the Engineer was directed to analyze and document additional hydrologic flow models and ecological conditions on Little River, Lake Michie, Flat River, Eno River, Falls Lake and Teer Quarry. These activities were beyond the scope of the amended contract.	\$139,400.00
<b>Value Engineering (VE)</b>	The City contracted with Hazen and Sawyer during the design process to review and critique the plans provided. Fees were incurred for document reproduction, project review with the Value Engineering (VE) team, and evaluation of the final VE study results.	\$28,451.00
<b>Conform Documents to Regulatory Changes</b>	The NEC, NC Building Code and City Stormwater Ordinances were all changed through the course of design and as recently as 2012. Because of the complex Environmental Assessment (EA) analysis and extended EA timeline, the Engineer's designs do not meet current building codes. This requires the Engineer to review all code changes and update the design plans and bidding documents accordingly.	\$175,325.00
<b>Design Changes Beyond Scope</b>	A number of facility changes and additions have been identified since the initial plans were completed. These changes include elements agreed on in the VE study recommendations, a minimum release structure at Lake Michie, standardization on key equipment vendors and a negotiated settlement of fees associated with design changes from the amended scope.	\$505,245.00
<b>Construction Contract #1 Adjustment</b>	Construction services were scheduled for 6 months. The actual construction lasted 24 months. The delays were caused by a combination of extended valve delivery times and contractor delays. The Engineer was required to provide additional services including emergency repair services, time extensions granted to the contractor and negotiations with the contractor over liquidated damages assessed as a result of delays. The construction contractor ultimately paid \$28,000 in liquidated damages to the City.	\$93,500.00

The costs are allocated against the evaluation phase, design phase and the construction phase services of the contract. A summary of the additional fees proposed are below in Table 2.

The City is also requesting a contingency for miscellaneous design services of \$94,192.00.

Table #2 – Allocation of Additional Fees

Additional Service	Current Contract Amount	Proposed Fee	Revised Contract Amount
	Column A	Column B	Column C
Additional Evaluation Phase Services – EA assistance	\$ 679,890.00	\$ 139,400.00	\$ 819,290.00
Additional Design Phase Services	\$ 3,718,480.00	\$ 709,021.00	\$ 4,427,501.00
Additional Construction Phase Services	\$ 1,731,200.00	\$ 93,500.00	\$ 1,824,700.00
Contingency Fund	\$ 11,243.00	\$ 94,192.00	\$ 105,435.00
3 <sup>rd</sup> Amendment Total plus Contingency		\$1,036,113.00	

Table #3 – Total Contract Summary

Contact Authorization	Amount
Remaining Contingency	\$ 11,243.00
Current Contract plus Obligated Contingency	\$7,544,206.00
3 <sup>rd</sup> Amendment Total plus Contingency	\$1,036,113.00
Total Potential Contract	\$8,591,562.00

The Department has reviewed additional services request and has determined the design fees to be fair and reasonable. The Department recommends approving the amendment.

### Alternatives

The only alternative identified is not to authorize the contract amendment with Black and Veatch. This would require the City to re-allocate funding from the Construction Services Phase to the Design Phases of the contract leading to insufficient funding for the Construction Services Phase of project. The City would then be required to re-advertise for Construction Services. It is in the City's best interest to have the Engineer complete the work on the EA and the design documents.

### Financial Impact

Funding for this contract was budgeted for the Water Plant Rehabilitation Account as part of the CIP. There are currently funds available in the account below:

Water Plant Rehabilitation     \$1,036,113.00                      4100P007-731000-P0B09

### SDBE Summary

This is a contract amendment and was not reviewed for compliance with the Ordinance to Promote Equal Opportunities in City Contracting

### Attachments

Proposed Contract Amendment #3